

ONTOLOGY-ORIENTED E-GOVERNMENT SERVICE INTEGRATION UTILISING THE SEMANTIC WEB

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A thesis submitted for the degree of
Doctor of Philosophy



July 2011

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Certificate of Authorship/Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text. I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Acknowledgements

This thesis is the result of a four years effort to climb the mount improbable of my life. It has given me the possibility to engage in even higher challenges, which there are many ahead. Looking back to my physical journey from my birth land Kurdistan to Australia and from who I was to whom I have become, I realise that I could have never completed it without the help of so many people. This is the time to thank them all!

I would like to express my sincere gratitude to my principal supervisor, Professor Jie Lu, for her continuous encouragement, advice, help and invaluable suggestions. She has been a generous, helpful and kind hearted person. Many thanks also to my co-supervisor, Professor Guangquan Zhang, for his valued suggestions to this study.

I wish to thank my fellow research students in our Decision Systems and e-Service Intelligence (DeSI) and the staff of the Faculty of Engineering and Information Technology, University of Technology, Sydney (UTS) for their various assistance and advice are of great benefit to this study. I appreciate the financial support from both the Faculty of Engineering and Information Technology and the Centre for Quantum Computation and Intelligent Systems (QCIS).

I appreciate the travel support for attending the international conferences which I received from the Faculty of Engineering and Information Technology, the UTS Vice- Chancellor's Conference Fund and QCIS. This thesis received editorial advice from Ms Sue Felix, helping to identify the correct grammar, syntax and presentation problems.

I would like to express my heartfelt appreciation and gratitude to my parents for all their love and support, also my brothers and sisters for their constant encouragement over all these years.

The Last but certainly not the least, I am extremely fortunate that I could share the joy and the pain of the last four years with my dear wife, Baharak. She has been by my side during hard times and comforted me and encouraged me to continue. I am grateful for her love and endless optimism in times when barriers seemed impossible to pass. Shano and Kani this is also for you to remember that no matter how improbable things may look, nothing is impossible.

Table of Content

CHAPTER 1: INTRODUCTION	12
1.1 BACKGROUND	12
1.2 RESEARCH QUESTIONS	14
1.3 RESEARCH OBJECTIVES	17
1.4 SIGNIFICANCE	18
1.5 CONTRIBUTIONS	20
1.6 RESEARCH METHODOLOGY	22
1.6.1 <i>Design Research</i>	22
1.6.2 <i>Research Process</i>	25
1.7 THESIS STRUCTURE	28
1.8 PUBLICATIONS RELATED TO THE THESIS	32
1.8.1 <i>Published Journal and Conference Papers</i>	32
1.8.2 <i>Submitted Paper</i>	33
CHAPTER 2: LITERATURE REVIEW	34
2.1 E-GOVERNMENT	35
2.2 KEY E-GOVERNMENT APPLICATION AREAS	36
2.2.1 <i>E-government Interactive Services</i>	36
2.2.2 <i>E-democracy and E-participation</i>	37
2.2.3 <i>E-government Transformation</i>	38
2.3 E-GOVERNMENT EVOLUTIONARY MODELS	40
2.3.1 <i>Ziegler and Dittrich data integration model</i>	40
2.3.2 <i>Gartner E-government Model</i>	42
2.3.3 <i>Layne and Lee E-government model</i>	43
2.4 WEB SERVICES: STATE OF TECHNOLOGY	44
2.4.1 <i>Software as a Service</i>	45
2.4.2 <i>IT Industry Survey</i>	46
2.5 SERVICE DELIVERY IN E-GOVERNMENT	48
2.6 SEMANTIC WEB AND E-GOVERNMENT INTEROPERABILITY	49
2.6.1 <i>Semantic Web</i>	49
2.6.2 <i>E-Government and Life Event Initiative</i>	52
2.6.3 <i>Ontology for Semantic Web</i>	55
2.6.4 <i>Service Ontology</i>	56
2.6.5 <i>E-government Ontology</i>	59

2.6.6	<i>Service Ontology for E-government Services</i>	61
2.6.7	<i>Concept of Life Event Ontology</i>	61
2.7	SUMMARY	63
CHAPTER 3: HYBRID E-GOVERNMENT INTEGRATION MODEL		64
3.1	E-GOVERNMENT EVOLUTIONARY DEVELOPMENT	64
3.2	A HYBRID MODEL	66
3.3	SPECIFICATIONS OF HYBRID E-GOVERNMENT INTEGRATION MODEL	69
3.3.1	<i>Web Presence</i>	69
3.3.2	<i>Transaction</i>	70
3.3.3	<i>Intelligent Transformation</i>	70
3.4	SUMMARY	73
CHAPTER 4: SERVICE INTEGRATION ENGINEERING PROCESS		74
4.1	INTEGRATION ENGINEERING VS. SOFTWARE ENGINEERING	75
4.2	LIFE EVENT	80
4.3	SERVICE INTEGRATION ENGINEERING IN PRACTICE	82
4.3.1	<i>Analysis Phase</i>	83
4.3.2	<i>Design Phase</i>	84
4.3.3	<i>Delivery Phase</i>	86
4.4	SUMMARY	87
CHAPTER 5: LIFE EVENT ONTOLOGY		89
5.1	DEFINITION OF ONTOLOGY	89
5.2	RDF AND RDF SCHEMA	90
5.2.1	<i>RDF Model</i>	91
5.3	OWL	92
5.3.1	<i>OWL Model</i>	92
5.3.2	<i>Sublanguages</i>	93
5.3.3	<i>OWL Querying</i>	94
5.4	USING ONTOLOGIES VS. DATABASES	95
5.5	WEB SERVICES ONTOLOGY	96
5.6	LIFE EVENT ONTOLOGY	100
5.6.1	<i>LifeEvent Concept</i>	101
5.6.2	<i>LifeEventInstance Concept</i>	102
5.6.3	<i>LifeEventService Concept</i>	103
5.6.4	<i>ServiceInstance Concept</i>	104
5.7	LIFE EVENT ONTOLOGY FORMAL DESCRIPTION	111
5.8	SUMMARY	114

CHAPTER 6: E-GOVERNMENT SERVICE INTEGRATION MODELLING FRAMEWORK	115
6.1 SEMANTIC INFORMATION INTEGRATION	116
6.2 CONCEPT OF ABSTRACTION	117
6.3 ESIM OVERVIEW	117
6.4 ESIM FRAMEWORK	119
6.4.1 <i>Stage 1 - Translating WSDL to OWL-S</i>	121
6.4.2 <i>Stage 2 – LifeEvent Meta Modelling</i>	122
6.4.3 <i>Stage 3: LifeEvent Instantiation and Execution</i>	126
6.5 SUMMARY	131
CHAPTER 7: LIFEEVENT ONTOLOGY ORIENTED SERVICE INTEGRATION PLATFORM	132
7.1 TECHNOLOGY OVERVIEW	133
7.2 ARCHITECTURE OVERVIEW	135
7.3 DESIGN PATTERN OVERVIEW	139
7.4 OBJECT ORIENTED DESIGN	142
7.5 APPLICATION COMPONENT DESCRIPTION	144
7.5.1 <i>WSDL2OWL-S Manager</i>	145
7.5.2 <i>LifeEvent Metamodel Manger</i>	146
7.5.3 <i>LifeEvent Enactment Manger</i>	148
7.6 APPLICATION DEVELOPMENT	150
7.7 SUMMARY	151
CHAPTER 8: FRAMEWORK EVALUATION AND EXPERIMENTATION	153
8.1 LIFEEVENT ONTOLOGY EVALUATION	153
8.2 ONTOLOGY MEASURING METHODS	154
8.2.1 <i>Ontology Level Metrics</i>	154
8.2.2 <i>Class Level Metrics</i>	155
8.3 EXPERIMENT PREPARATION	156
8.3.1 <i>Step 1: Building the Ontology</i>	156
8.3.2 <i>Step 2: Selecting a Comparable Ontology</i>	157
8.3.3 <i>Step 3: Experimentation</i>	158
8.4 LOOSI PLATFORM PROTOTYPE EVALUATION	164
8.4.1 <i>Experiment Preparation</i>	164
8.4.2 <i>Register a New Web Service</i>	166
8.4.3 <i>Compose a LifeEvent Metamodel</i>	170
8.4.4 <i>Select and Execute a LifeEvent Instance</i>	173
CHAPTER 9: CONCLUSION AND FUTURE WORK	187

9.1	PROBLEM AREA AND OBJECTIVES	187
9.2	THE MAIN CONTRIBUTIONS OF THIS RESEARCH	189
	9.2.1 <i>In Theory</i>	189
	9.2.2 <i>In Practice</i>	190
9.3	FUTURE WORK	191

Table of Figures

Figure 1.1 General Methodology of design Research	23
Figure 1.2 The research process	26
Figure 1.3 Relationship between chapters	31
Figure 2.1 Ziegler and Dittrich integration model	41
Figure 2.2 Gartner Integration Model	42
Figure 2.3 Layne and Lee Integration model	43
Figure 2.4 Layered architecture of semantic web	51
Figure 2.5 Maturity of the Life Event ‘Losing and Finding a Job’	54
Figure 3.1 A generic structure for federal system of government	66
Figure 3.2 Hybrid E-government Integration Model	69
Figure 4.1 Constructing a LifeEvent from available web services	80
Figure 4.2 LifeEvent as building blocks of integrated e-government	81
Figure 4.3 Conceptual diagram of the SIE process	82
Figure 5.1 LifeEvent ontology conceptual graphs.	108
Figure 6.1 Overview of the ESIM framework.	118
Figure 6.2 ESIM framework for LifeEvent Life Cycle	120
Figure 6.3 LifeEvent ServiceInstance and OWL-S construction process.	122
Figure 6.4 Metamodelling conceptual diagrams	124
Figure 6.5 Creating/Editing LEM	126
Figure 6.6 Runtime workflow construction and LEI execution	127
Figure 7.1 Service Oriented Architecture overview	135
Figure 7.2 Architectural overview of LOOSI platform prototype	137

Figure 7.3 MVC design Patterns	140
Figure 7.4 The prototype compliance of MVC design Patterns	141
Figure 7.5 The LOOSI prototype java classes mapped in MVC	143
Figure 7.6 WSDL2OWL-S component functional flowchart	146
Figure 7.7 LifeEvent Metamodel Manager functional flowchart	148
Figure 7.8 LifeEvent Enactment Manager functional flowchart	149
Figure 7.9 Three main functions of LOOSI prototype	151
Figure 8.1 LifeEvent Ontology Built by Protégé.	157
Figure 8.2 OWL-S Ontology schema	158
Figure 8.3 LifeEvent and OWL-S named individuals	159
Figure 8.4 Physical growths in ontology data as per SOV ratio	161
Figure 8.5 Physical growths in ontology data per ENR ratio	162
Figure 8.6 Physical growths in complexity of ontology data as per NOC ratio	164
Figure 8.7 Home page of LOOSI platform prototype	166
Figure 8.8 Capturing the WSDL URL and service description	167
Figure 8.9 User semantic input to create the OWL-S ontology data	168
Figure 8.10 Actual results of executing the stage 1 of the ESIM by the LOOSI prototype	169
Figure 8.11 Enforcing the regulatory knowledge provided by LifeEvent ontology	171
Figure 8.12 Successful assembly of a LifeEvent Metamodel	172
Figure 8.13 Selecting LifeEvent Metamodel	174
Figure 8.14 Personalising LifeEvent Metamodel	175
Figure 8.15 Confirming the execution of personalised LifeEvent instance	177
Figure 8.16 Select an operation from the currently web service	179

Figure 8.17 User data entry screen to invoke an operation from the currently web service	181
Figure 8.18 Finalised web services are coloured as green on the progress bar.	182
Figure 8.19 Retrieving an incomplete LifeEvent Instance.	183
Figure 8.20 Revisiting an incomplete LifeEvent Instance.	184
Figure 8.21 Web service failure notification	185
Figure 8.22 LifeEvent repair action	186

List of Tables

Table 4.1 Comparing activities in SIE and SE	77
Table 7.1 Notations for web service enactment component functional description	145
Table 8.1 Numerical of ontology growth as per SOV ratio.	160
Table 8.2 Numerical of physical growth for ontology as per ENR ratio	162
Table 8.3 Numerical of physical growth for ontology classes as per NOC ratio	163
Table 8.4 Readily available web service in AXIS2 test server	165

Table of Listings

Listing 5.1 Definition of object property hasService	102
Listing 5.2 Definition of object property hasServiceInstance	103
Listing 5.3 Definition of object property hasPrerequisite	104
Listing 5.4 Definition of hasServiceSubType and hasServiceType	104
Listing 5.5 Implementation of property hasPrecondition in OWL-S	109
Listing 5.6 Class Prerequisite in LifeEvent Ontology	110
Listing 8.1 RDF statements in LifeEvent ontology data file.	173

Abstract

E-government service integration process has recently become an important research topic in e-government domain since many countries have developed various levels of e-government services. Non-interoperability between government agencies in service delivery implementation and platform posing the technical challenge, and the lack of the formulated modelling framework is the main methodological obstacle on the way of achieving dynamic delivery of integrated e-government services.

This research is a study of the problems associated with the integration and delivery of integrated e-government services, and proposes a novel solution to tackle them. We start with investigating the fundamentals of e-government as a field of research to build a sensible argument for the questions investigated by this research, which lead to the exposure of the methodological as well as technological problems with the mechanics of e-government in the areas of service integration and delivery.

The outcomes of this study in Chapters 3, 4, 5, 6, and 7 respectively 1) suggests the most practically relevant and technically possible evolutionary pathway to e-government transformation, 2) proposes a modified software engineering process to achieve such transformation, 3) develops an innovative framework for modelling the service integration, 4) proposes an ontology as its knowledgebase, and 5) develops an innovative and intelligent software to support the practice of service integration and delivery. These outcomes collectively result in the introduction of a novel, complete and coherent solution for the abovementioned problems.

This research is a cross disciplinary study of software integration engineering frameworks, e-government service delivery platform and semantic web technology, all working to devise the most efficient and robust framework of using semantic web capabilities to enable the delivery of integrated e-government services in an intelligent platform.